



ICAO ENGINE nvPM EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: PW308A BYPASS RATIO (-): 4.1
 UNIQUE ID NUMBER: 01P07PW145 PRESSURE RATIO π_{co} (-): 20.4
 COMBUSTOR: Annular
 ENGINE TYPE: MTF RATED OUTPUT F_{co} (kN): 30.7

REGULATORY DATA

CHARACTERISTIC VALUES:	LTO_{mass}/F_{co} (mg/kN)	LTO_{num}/F_{co} (particles/kN)	NVPM MASS CONCENTRATION ($\mu\text{g}/\text{m}^3$)
LTO/F_{co} AND MAX $nvPM_{mass}$	694.4	6.18E+15	1291
AS % OF CAEP/10 LIMIT	-	-	9.5
AS % OF CAEP/11 LIMIT (InP)	17.5	26.6	
AS % OF CAEP/11 LIMIT (NT)			

MEASURED DATA

MODE	POWER SETTING (% F_{co})	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES*		NVPM MASS CONCENTRATION PEAK $nvPM_{mass}$ ($\mu\text{g}/\text{m}^3$)
				EI_{mass} (mg/kg)	EI_{num} (particles/kg)	
TAKE-OFF	100	0.7	0.360	209.6	9.24E+14	
CLIMB OUT	85	2.2	0.299	154.8	9.33E+14	
APPROACH	30	4.0	0.123	48.5	4.74E+14	
IDLE	7	26.0	0.045	66.5	1.03E+15	
LTO TOTAL (kg, mg, number of particles)			154	15340	1.36E+17	-
NUMBER OF ENGINES				1	1	1
NUMBER OF TESTS				3	3	3
AVERAGE LTO/F_{co} VALUES (mg/kN, particles/kN)				499.5	4.44E+15	-
MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ($\mu\text{g}/\text{m}^3$)				209.6	1.03E+15	1003

* Emissions Indices are corrected for thermophoretic loss and fuel hydrogen content

DATA FOR EMISSIONS INVENTORIES (ESTIMATIONS FOR ENGINE EXIT PLANE VALUES)

MODE	POWER SETTING (% F_{co})	CORRECTED EMISSIONS INDICES	
		EI_{mass_sl} (mg/kg)	EI_{num_sl} (particles/kg)
TAKE-OFF	100	246.4	2.15E+15
CLIMB OUT	85	184.8	2.39E+15
APPROACH	30	60.5	1.43E+15
IDLE	7	87.7	3.68E+15

AMBIENT CONDITIONS

	From	To	FUEL	
BAROMETER (kPa)	99.4	100.2	HEAT OF COMBUSTION (MJ/kg)	43.27
TEMPERATURE (K)	296.0	300.0	HYDROGEN CONTENT (%mass)	13.85
HUMIDITY (kg water/kg dry air)	0.0063	0.0103	AROMATICS CONTENT (%vol)	16.0
			NAPHTHALENE CONTENT (%vol)	0.94
			SULPHUR CONTENT (ppm by mass)	435

MANUFACTURER: Pratt & Whitney Canada
 TEST ORGANIZATION: Pratt & Whitney Canada
 TEST LOCATION: Mississauga, Ontario, Canada
 TEST DATES: 30/07/2019-01/08/2019

REMARKS

1. Data acquired using procedures and systems prescribed in Annex 16 Volume II, Amd. 9
2. Thermophoretic correction applied as described in Annex 16 Volume II, Amd. 9, Appendix 7, Section 6.2.1
3. Data corrected for fuel hydrogen content according to CAEP11.WP91 App.A
4. Export classification: EIPA NSR, DPA No, US-I 9E991, OUS-I NSR.
5. Data reported in ER 10579 Rev. A